

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Patent Application of

TANIGUCHI

Atty. Ref.: 972-85

Serial No. To Be Assigned

Group: Not Yet Assigned

Filed: August 30, 2001

Examiner: Not Yet Assigned

For: PROJECTION EXPOSURE APPARATUS AND METHOD

* * * * *

August 30, 2001

Assistant Commissioner for Patents
Washington, DC 20231

Sir:

PRELIMINARY AMENDMENT

In order to place the above-identified application in better condition for examination, please amend the application as follows:

IN THE SPECIFICATION

Page 1, before line 4 "BACKGROUND OF THE INVENTION", please insert the following paragraph:

This application is a divisional of U.S. Patent Application No. 09/263,803, filed March 8, 1999, now pending, which is a continuation of U.S. Patent Application No. 08/871,881, filed June 9, 1997, abandoned, the entire contents of which are hereby incorporated by reference in this application.

IN THE CLAIMS

Please cancel claims 13-31 without prejudice or disclaimer.

Please add new claims 32-40 as follows:

32. (New) The projection exposure apparatus of claim 1, wherein the projection optical system comprises a first lens element and a second lens element, the imagery characteristic correction mechanism having a first drive to drive the first lens element and a second drive to drive the second lens element.

33. (New) The projection exposure apparatus of claim 1, wherein the projection exposure apparatus is a scanning type projection exposure apparatus.

34. (New) The projection exposure apparatus of claim 9, wherein the projection optical system comprises a first lens element and a second lens element, the imagery characteristic correction mechanism having a first drive to drive the first lens element and a second drive to drive the second lens element.

35. (New) The projection exposure apparatus of claim 9, wherein the projection exposure apparatus is a scanning type projection exposure apparatus.

36. (New) A projection exposure apparatus that projects a pattern onto a substrate through a projection optical system, the projection exposure apparatus comprising:

an imagery characteristic correction mechanism coupled with the projection optical system that drives at least part of the projection optical system to correct an imagery characteristic of the projection optical system;

an error detector communicating with said imagery characteristic correction mechanism, said error detector determining a projection error of the pattern in accordance

with a driven amount of the projection optical system by said imagery characteristic correction mechanism; and

a correction mechanism connected to the error detector to correct the projection error.

37. (New) The projection exposure apparatus of claim 36, wherein the detector comprises a memory to store a relation between the driven amount the projection optical system and the projection error of the pattern.

38. (New) The projection exposure apparatus of claim 36, wherein the imagery characteristic correction mechanism comprises a plurality of actuators to drive at least part of the projection optical system.

39. (New) The projection exposure apparatus of claim 36, wherein the projection optical system comprises a first lens element and a second lens element, the imagery characteristic correction mechanism having a first drive to drive the first lens element and a second drive to drive the second lens element.

40. (New) The projection exposure apparatus of claim 36, wherein the projection exposure apparatus is a scanning type projection exposure apparatus.

REMARKS

Claims 1-12 and 32-40 are present in this application. By this Amendment, claims 13-31 have been canceled, and claims 32-40 have been added.

A prompt and favorable examination is requested.

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Respectfully submitted,

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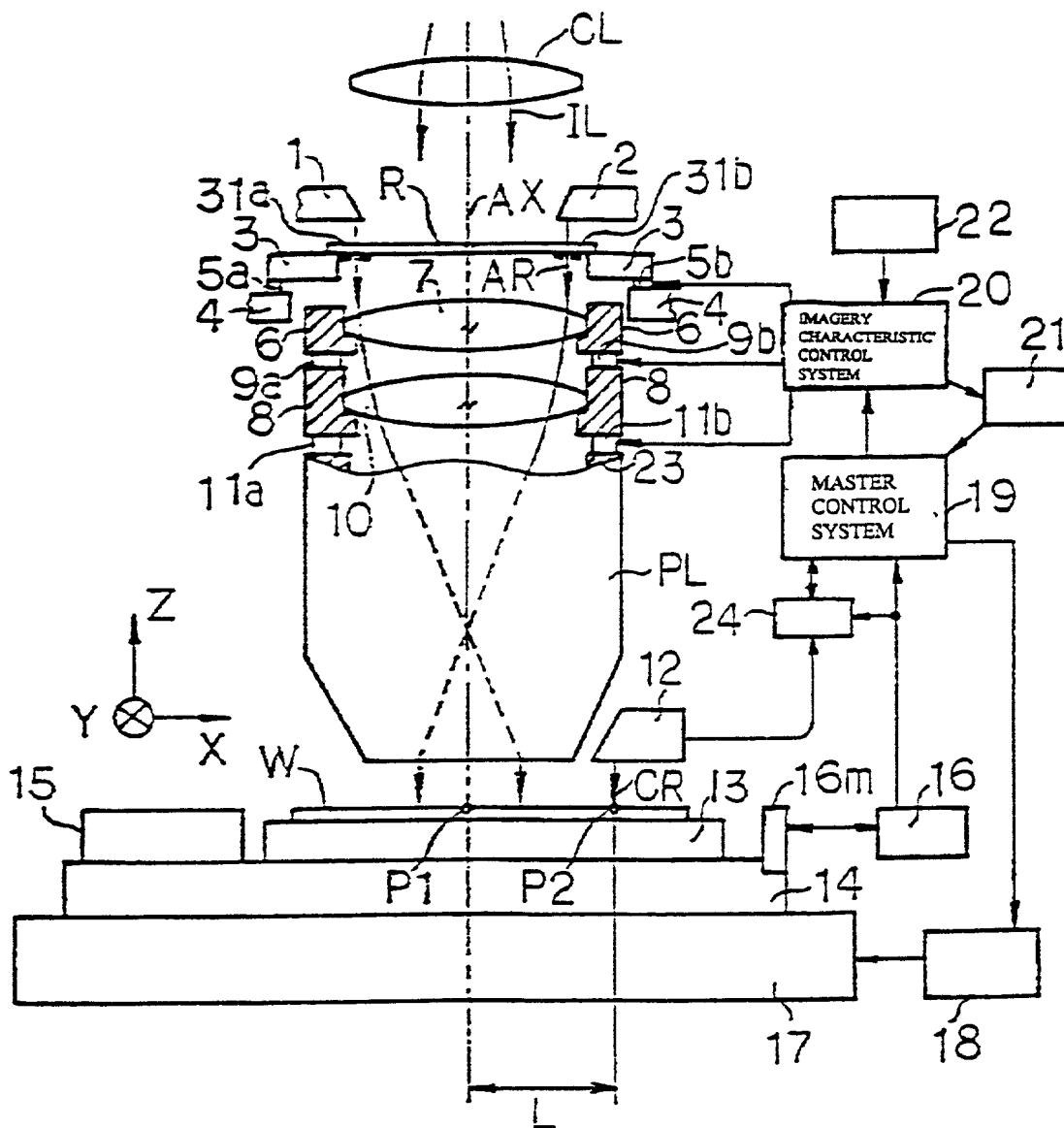


FIGURE 1

FIGURE 2

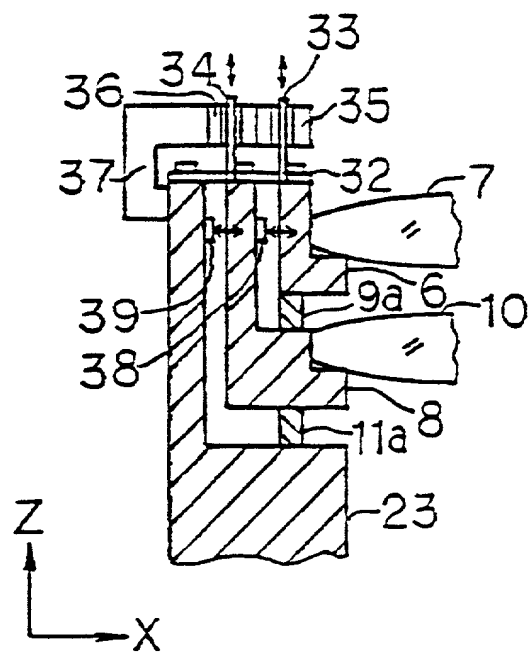


FIGURE 3

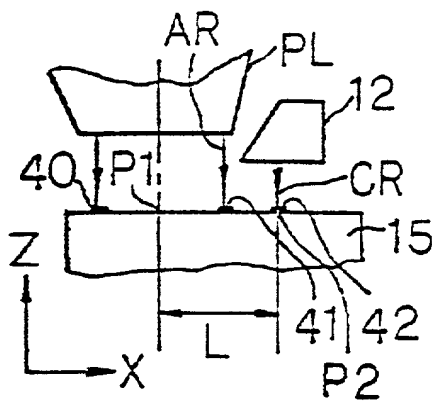


FIGURE 4(a)

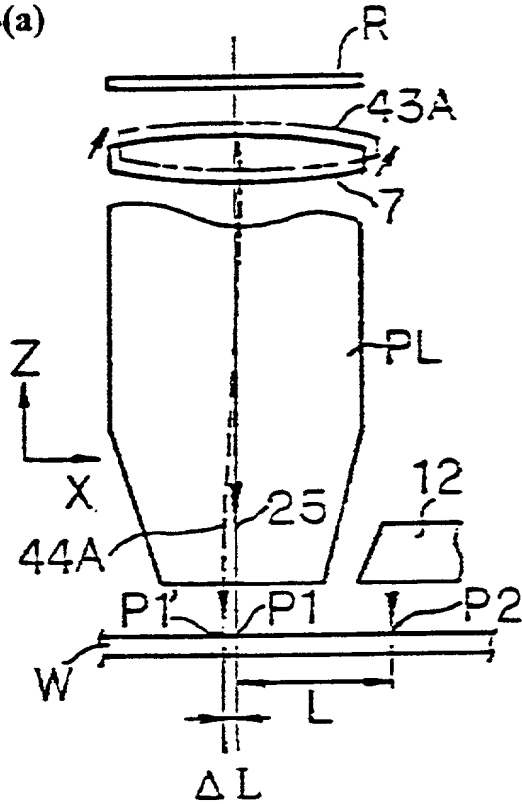


FIGURE 4(b)

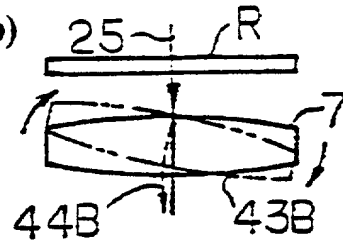


FIGURE 4(c)

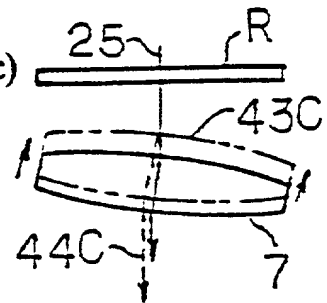
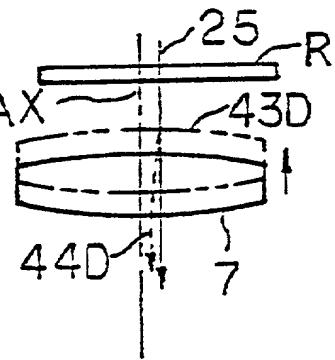


FIGURE 4(d)



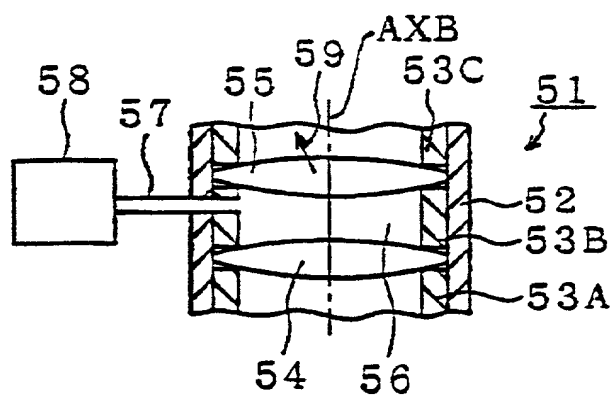


FIGURE 5

FIG. 7

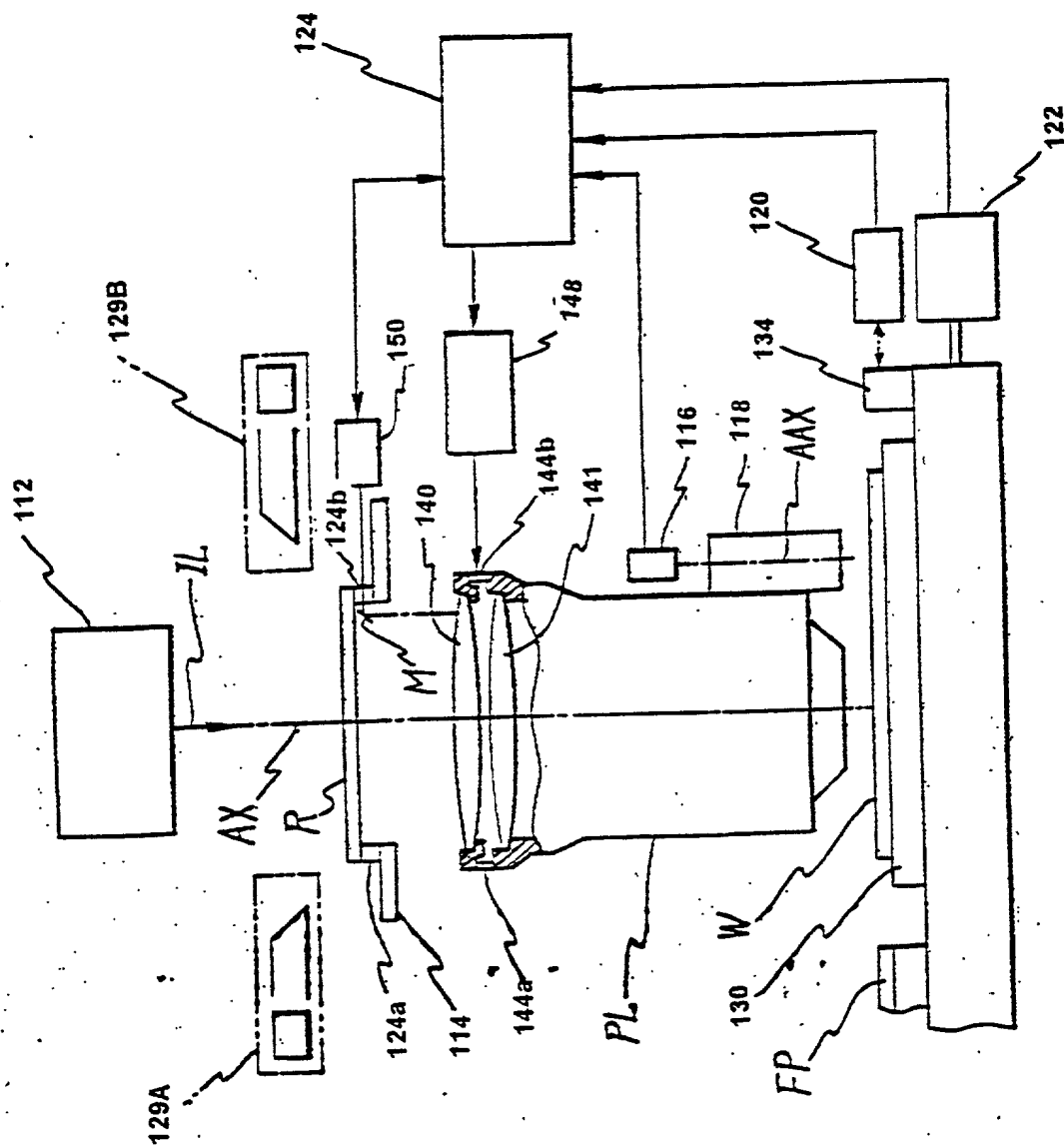


FIG. 8

